



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,506	07/23/2004	Eric Stephen Carlsgaard	PU010288	5769

7590 01/26/2006  
Joseph S. Tripoli  
Thomas Licensing Inc.  
Patent Department  
P O Box 5312  
Princeton, NJ 08543-5312

EXAMINER

HUYNH, ANDY

ART UNIT PAPER NUMBER

2818

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/502,506	CARLSGAARD, ERIC STEPHEN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andy Huynh	2818	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-10, 13-17, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 11, 12, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

This Office Action is responsive to the Amendment filed January 10, 2006.

### *Response to Arguments*

Applicant's arguments with respect to Claims **1-3, 6-10, 13-17, 20 and 21** have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 U.S.C. § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-3, 8-10, 15** are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto (USP 5,965,948).

Regarding Claim **1**, Okamoto discloses in Fig. 4 and its corresponding texts as set forth in column 2, lines 37-51, an integrated circuit die for a flip chip/a semiconductor device comprising:

a die/a semiconductor chip 41; and

a plurality of die bond pads 42, 43, 44 situated on said die/semiconductor chip wherein said die bond pads are situated in rows, including the die bond pads 42 and 43, with every other

Art Unit: 2818

row, including die bond pads 44, having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Regarding Claims **2 and 9**, Okamoto discloses in Fig. 4 said plurality of die bond pads is positioned proximate an outside surface of said die.

Regarding Claims **3 and 10**, Okamoto discloses in Fig. 4 the bond pad spacing of every other row is twice the bond pad spacing of an adjacent row.

Regarding Claim **8**, Okamoto discloses in Fig. 4 and its corresponding texts as set forth in column 2, lines 37-51, an integrated circuit die for a flip chip/a semiconductor device comprising:

Die means/a semiconductor chip 41; and

a plurality of die bond pads 42, 43, 44 situated on said die/semiconductor chip wherein said die bond pads are situated in rows, including the die bond pads 42 and 43, with every other row, including die bond pads 44, having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Regarding Claim **15**, Okamoto discloses in Fig. 4 and its corresponding texts as set forth in column 2, lines 37-51, a method of fabricating an integrated circuit die for a flip chip/a semiconductor device comprising the steps of:

providing an integrated circuit die/a semiconductor chip 41; and

providing a plurality of die bond pads 42, 43, 44 situated on said integrated circuit die/semiconductor chip wherein said plurality of die bond pads are situated in rows, including the die bond pads 42 and 43, with every other row, including die bond pads 44, having a bond pad spacing different than that of a bond pad spacing of an adjacent row.

Art Unit: 2818

Regarding Claims **16 and 17**, Okamoto discloses in Fig. 4 said step of providing a plurality of die bond pads comprises positioning the rows of die bond pads proximate an outside surface of said die/semiconductor chip, wherein the step of providing rows of bond pads beginning proximate an outside surface of said integrated circuit die includes the step of providing rows of bond pads with every other row having a bond pad spacing twice that of a bond pad spacing of an adjacent row.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **6-7, 13-14, 20 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto (USP 5,965,948) in view of Mangold et al. (USP 5,759,910 hereinafter referred to as "Mangold").

Okamoto discloses all the claimed limitations except for each die bond pad is circular, and each circular bond pad has a diameter of approximately 5 mils. Mangold teaches in Fig. 1 each die bond pad 104 has circular pad geometry (col. 1, line 60). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize the die bond pad having circular pad geometry, as taught by Mangold to incorporate into Okamoto's structure to arrive the claimed invention, since such a modification would have involved a mere change in the shape of the die bond pad. A change in shape is generally recognized as being within the

Art Unit: 2818

level of ordinary skill in the art. And, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to form each circular bond pad having a diameter of approximately 5 mils, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Allowable Subject Matter***

Claims 4-5, 11-12, 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations.

### ***Conclusion***

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy Huynh, (571) 272-1781. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The Fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 2818

Any inquiry of a general nature or relating to the -status of this application or proceeding should be directed to the receptionist whose phone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ah

Andy Huynh

Patent Examiner